

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Issues Related to the Commission's)	ET Docket No. 02-135
Spectrum Policies)	
)	

To: The Spectrum Policy Task Force

**COMMENTS OF
NATIONAL PUBLIC RADIO, INC.**

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Introduction

National Public Radio, Inc. ("NPR") hereby submits its Comments in response to the Public Notice requesting comment on the Commission's spectrum policies.¹

NPR is a non-profit membership corporation that produces and distributes noncommercial educational programming through more than 600 public radio stations nationwide. In addition to broadcasting award winning NPR programming, including *All Things Considered*[®], *Morning Edition*[®], *Talk Of The Nation*[®], and *Performance Today*[®], NPR's Member stations are significant producers of news, informational, and cultural programming. NPR also operates the Public Radio Satellite Interconnection System and provides representation and other services to its Member stations.

¹ Spectrum Policy Task Force Seeks Public Comment on Issues Related to Commission's Spectrum Policies, Public Notice, ET Docket No. 02-135 (rel. June 6, 2002) [hereinafter "Spectrum Policy Public Notice"].

Summary

NPR applauds the establishment of the Spectrum Policy Task Force and its efforts to improve the Commission's existing spectrum policies. At bottom, the Commission and its management of the radio frequency spectrum exists for the singular objective of advancing the public interest. At the same time, we recognize that the public interest may be served in a variety of ways. Thus, the market orientation of the Commission's existing spectrum policies is intended to serve the public interest through the efficient allocation and assignment of spectrum and in a manner that facilitates the introduction of new services.

A market-oriented approach to allocating and assigning spectrum is not the exclusive means of serving the public interest, however, because of the diversity of existing and potential uses of spectrum. Indeed, the Spectrum Policy Public Notice acknowledges the failings of an auction-based spectrum assignment system at least with regard to public safety services. We believe, moreover, that other noncommercial public interest services warrant greater accommodation under the Commission's spectrum rules and policies. Just as land-use and other governmental policies assure sufficient space for public parks, libraries, museums, and other public facilities and institutions, so too should the allocation and assignment of the radio frequency spectrum accommodate important public service uses of spectrum.

With specific regard to noncommercial educational ("NCE") broadcast services, the Commission has yet to develop a proper balance between its statutory directive to auction mutually exclusive applications for new commercial service and the statutory auction exemption for new NCE stations. Attempting to subject all competing NCE and commercial broadcast applications to auction or denying NCE entities access to spectrum cannot be reconciled with the Communications Act, underlying Congressional intent, or communications policy. While we do

not expect the Spectrum Policy Task Force to resolve specific matters currently before the Commission regarding competing NCE and commercial broadcast applications for non-reserved spectrum, the Task Force can make a valuable contribution in a number of ways.

We urge the Task Force to consider how the Commission's existing spectrum policy should be modified to assure access to spectrum for public safety, NCE broadcast, and other public interest services. Part of the solution may be to allocate additional spectrum specifically for such uses. It may also be necessary to tailor specific solutions to specific service categories. In any event, we urge the Task Force to pursue the matter to ensure that important services are not fatally undermined by an unbalanced market-based spectrum policy.

We also believe the Commission needs to do more to protect spectrum users and uses. Since all of telecommunications is migrating to digital technologies, an in-depth analysis of the spectrum usage issues is imperative. Specifically, the radically different interference potential of specific digital coding techniques must be understood to update rules written long ago based on analog transmitters and receivers. Understanding these issues holistically includes measuring, quantifying and predicting the accuracy of countervailing improvements in interference immunity. Understanding the tradeoffs implicit in the mass implementation of digital transmissions is of paramount significance in moving America's telecommunication infrastructure forward.

With specific regard for radio broadcast services, the Commission continues to rely on interference prediction methodologies despite their acknowledged flaws. There is also no generally accepted, baseline understanding of the performance characteristics of modern receiver equipment, particularly those based on core Digital Signal Processing (DSP) technologies. Finally, as the Commission has deregulated the broadcast industry over the past two decades, it

has allocated fewer and fewer resources to protecting spectrum users and uses from harmful interference.

We therefore urge the Task Force to examine the Commission's technical rules in the following ways specific to the broadcast industry. First, the Task Force should initiate evaluations of (1) the Commission's current methodologies for avoiding harmful interference when authorizing new broadcast facilities, including secondary translator services, (2) the performance characteristics of radio reception equipment and particularly the interference consequences of digital transmission and reception and (3) the Commission's enforcement of its technical rules. Second, and based on the foregoing, the Task Force should consider and propose for public comment concrete recommendations for improvements in each of these areas.

Protecting spectrum uses and users is a critical component to any spectrum allocation and assignment regime, and a Task Force-led initiative to evaluate and propose specific recommendations to the Commission's existing spectrum integrity rules would constitute an invaluable contribution to the Commission's spectrum management efforts.

I. The Commission Should Modify Its Market Oriented Allocation and Assignment Policies to Accommodate Valuable Noncommercial Uses of Spectrum

The Spectrum Policy Public Notice raises a critical, but heretofore under-examined, question concerning the limits to any market oriented allocation and assignment policy: assuming an auction-based spectrum allocation and assignment process generally promotes the public interest, what, if any, exceptions exist and how should the Commission accommodate those exceptions?² While the Spectrum Policy Public Notice focuses on one category of spectrum uses that the Commission views as an exception to the general auction rule -- public

² See Spectrum Policy Public Notice, Question 4.

safety³ -- we believe the Commission should broaden its perspective to consider non-market-based uses of spectrum as a general category and noncommercial educational ("NCE") uses in particular.

The basic rationale underlying the assignment of spectrum by auction is that the auction participant that most values the spectrum will bid the most, thus efficiently encouraging the productive use of spectrum.

Spectrum is a scarce resource, and thus every exclusive license granted denies someone else the use of that spectrum. This is what give [sic] spectrum a market value. Because new licenses would be paid for, a competitive bidding system will ensure that spectrum is used more productively and efficiently than if handed out for free. Competitive bidding concepts have long been applied to other important public resources such as grazing lands and oil and gas leases. The Committee believes it is now the time to extend those concept [sic] to the radio spectrum.⁴

While the initial Congressional authorization was limited to resolving certain mutually exclusive applications to provide subscription-based services,⁵ Congress subsequently expanded the Commission's auction authority.⁶ In so doing, however, Congress also recognized that the market-based rationale did not apply to every spectrum use and user. Congress therefore created specific exemptions from the Commission's auction authority to further the public interest in

³ Spectrum Policy Public Notice, Questions 22-26.

⁴ H.R. Rep. No. 111, 103rd Cong., 1st Sess. 249 (1993) reprinted in 1993 U.S. Code Cong. & Admin News 576.

⁵ See H.R. Conf. Rep. No. 213, 103rd Cong., 1st Sess. 481 (1993) reprinted in 1993 U.S. Code Cong. & Admin News 1170 ("These procedures will only be utilized when the Commission accepts for filing mutually exclusive applications for a license, and the Commission has determined that the principal use of that license will be to offer service in return for compensation from subscribers.").

⁶ See H.R. Conf. Rep. No. 217, 105th Cong., 1st Sess. 572 (1997), reprinted in 1997 U.S. Code Cong. & Admin News 176, 192.

certain types of services, including NCE broadcast services.⁷

Particularly in the case of public radio, NCE services are no less valuable just because NCE applicants are non-profit educational organizations or governmental entities that typically lack the financial means or ready access to capital markets to outbid for-profit companies for the spectrum. Indeed, former Commission Chairman Fowler, the original Commission advocate of a market-based spectrum policy, recognized the limitations of such a policy.

Economists have long recognized the existence of ‘merit goods,’ which society values although the marketplace cannot explain or justify their retention. Reservation of valuable real estate for public parks, public support for museums and libraries, the special tax treatment accorded religious and eleemosynary institutions, and the system of public education are all services shielded, to a greater or lesser extent, from marketplace forces. So, too, public [broadcasting] . . . has been a merit good.⁸

The challenge for the Task Force and the Commission is to move beyond acknowledging the existence of noncommercial public interest uses of spectrum to assuring access to sufficient spectrum to accommodate such uses.

Given the public interest in how spectrum is allocated and assigned, we believe the Commission and the Task Force should begin by considering the outcome of existing spectrum policies in terms of the eventual spectrum users and the service they will offer to the public. The purpose of such an analysis is not to identify the actual users and uses but to anticipate the likely categories of users and uses to make a threshold determination of whether and to what extent noncommercial users and uses warrant accommodation. Such an analysis means, in the case of

⁷ See 47 U.S.C. § 309(j)(2)(C). At the same time, Congress established other exemptions for digital television services and public safety services. 47 U.S.C. § 309(j)(2)(A)-(B). Congress subsequently exempted from auction orbital locations or spectrum used for the provision of international or global satellite communications services. 47 U.S.C. § 765f.

⁸ Mark S. Fowler & Daniel L. Brenner, A Marketplace Approach to Broadcast Regulation, 60 Tex. L. Rev. 41, 46 (1982).

over-the-air radio broadcasting, assessing the NCE and commercial radio broadcast markets against fundamental broadcast policy goals to determine the extent to which Commission spectrum policy should accommodate NCE uses of spectrum.

At the core of broadcasters' public interest obligations are the values of diversity of ownership and localism.

Diversity is one of the guiding principles of the Commission's local radio ownership rule. This principle is intended to advance the values of the First Amendment, which, as the Supreme Court stated, 'rests on the assumption that the widest possible dissemination of information from diverse and antagonistic sources is essential to the welfare of the public.'⁹

The Communications Act of 1934 also established localism as a touchstone for the allocation of spectrum for over-the-air broadcast use.¹⁰

Considering NCE radio broadcasting against the diversity and localism benchmarks, it is clear that NCE broadcasters provide a critical contribution to the diversity of voices and serve as important outlets of community expression. Public radio station licensees represent a broad range of public and private, community-based organizations: universities (188 licensees), non-profit community organizations (136 licensees), local governments (26 licensees), and state governments (8 licensees).¹¹ Many NCE stations are required by the Communications Act to

⁹ See In the Matter of Rules and Policies Concerning Multiple Ownership of Radio Broadcast Stations in Local Markets, Definition of Radio Markets, Notice of Proposed Rulemaking and Further Notice of Proposed Rule Making, MM Docket No. 01-317, MM Docket No. 00-244, 16 FCC Rcd. 19,861, at ¶ 29 (rel. Nov. 9, 2001) (quoting Associated Press v. United States, 326 U.S. 1, 20 (1945)).

¹⁰ 47 U.S.C. § 307(b). See also Pinellas Broadcasting Co. v. FCC, 230 F.2d 204, 207 (D.C. Cir. 1956) ("In requiring a fair and equitable distribution of service, Section 307(b) encompasses not only the reception of an adequate signal but also community needs for programs of local interest and importance and for organs of local self-expression."), cert. denied, 350 U.S. 1007.

¹¹ See Corporation for Public Broadcasting, Frequently Asked Questions About Public

establish and maintain community advisory boards, conduct public meetings and otherwise remain responsive to the needs of all individuals within their service area.¹² With regard to NCE stations generally, the Communications Act and Commission rules ensure that public broadcast stations are and remain responsive to their communities of service. Indeed, localism is the single greatest factor in the Commission's point system for resolving mutually exclusive NCE applications for reserved spectrum.¹³

In addition, a significant portion of a public broadcaster's budget is composed of direct financial contributions from local audiences. Public broadcasters therefore have a compelling incentive to serve local needs and interests.¹⁴ Significantly, while the Commission first sought to prevent undue concentration of ownership in commercial broadcasting more than 60 years ago,¹⁵ it has never found a need to address multiple ownership in public broadcasting.¹⁶

In many markets, NCE stations provide the last extensive local news coverage and are often the only outlet for classical music and related fine arts programming. NCE stations also

Broadcasting, http://www.cpb.org/pubcast/#who_runs.

¹² 47 U.S.C. § 396(k)(4), (8).

¹³ See In the Matter of Reexamination of the Comparative Standards for Noncommercial Educational Applicants, Report and Order, 15 FCC Rcd 7386, at ¶¶ 41-55 (2000).

¹⁴ See Revision of Program Policies and Reporting Requirements Relating to Public Broadcasting Licensees, 98 F.C.C. 2d 746, 753-754 (1984).

¹⁵ See 6 Fed. Reg. 2282 (May 6, 1941).

¹⁶ See In the Matter of Amendment of the Commission's Multiple Ownership Rules to Include Educational FM and TV Stations, Notice of Proposed Rulemaking, 68 F.C.C.2d 831 (1978) (noting that, "[a]lthough the economic concentration concern is not directly applicable" to public broadcasting, initiating an examination of NCE ownership limits); In the Matter of Amendment of the Commission's Multiple Ownership Rules to Include Educational FM and TV Stations, Order, 5 FCC Rcd 392 (1990) (terminating proceeding).

provide listeners with access to talented new contemporary music performers, particularly regional and local performers, who are often locked out of centralized program decision making at consolidated media groups. As grass roots local public services and arts organizations in their own right, NCE stations are both familiar with and contributors to their community's local arts and cultural scenes.

The contrast to commercial radio broadcasting is striking. Enactment of the Telecommunications Act of 1996¹⁷ and, with it, the elimination of national radio broadcast ownership limits, launched an unprecedented waive of ownership consolidation.

In the past five years, we have witnessed a frenzy of media mergers leading to the acquisition of many of our nation's newspapers, cable companies and radio and television stations by a powerful few. Prior to the 1996 Telecommunications Act, the top radio station group owned 39 stations and generated annual revenues of \$ 495 million. Today the top group owns more than 1,100 stations and generates annual revenues of almost \$ 3.2 billion. According to a recent news report, the radio industry has consolidated into four companies that control 90 percent of radio advertising revenue. Drive across the country and in big cities and small towns, your car radio too often plays only a handful of homogenized voices beamed by a few media conglomerates.¹⁸

Along with the rapid consolidation of the commercial broadcast industry has been a sharp reduction in locally responsive programming. "As corporations buy stations in the same market, they combine newsrooms and reporters and share playlists and radio personalities -- all with the same effect: less choice in music and less information for consumers."¹⁹ Perhaps not surprisingly, listening to commercial radio has steadily declined since the 1996

¹⁷ Pub. L. No. 104-104, 100 Stat. 56 (1996).

¹⁸ Sen. Ernest F. Hollings and Sen. Byron L. Dorgan, "Your Local Station, Signing Off," Washington Post, June 20, 2001, at A27.

¹⁹ 148 Cong. Rec. S 5469 (June 13, 2002) (Statement of Sen. Feingold).

Telecommunications Act; while listening to public radio has increased.²⁰

In many countries, publicly funded NCE radio services have enjoyed preferential spectrum allocation as a matter of sound public policy. In the United States, by comparison, there is no AM band spectrum reserved for NCE services and only 20 percent of the FM band spectrum is reserved for NCE stations. With respect to the reserved FM spectrum, moreover, NCE stations have had to operate with reduced facilities or expensive custom antenna systems because they bear the entire burden of avoiding cross-service interference between the reserved FM spectrum and the immediately adjacent television channel 6 spectrum.²¹ In fashioning public policy based on a respect for marketplace forces, we suggest that the growing audience for public radio services (as opposed to the declining audience for commercial radio) demands a preferential treatment in the allocation of the scarce remaining radio spectrum that remains. Such a preference would be more than merely responding to the realities of today's marketplace; it would also serve to mitigate the historical problems associated with the marginal allocation of spectrum for NCE services.

Such a preference would also be a marked change from current policy. Because NCE and commercial broadcasters share the vast bulk of radio spectrum allocated for over-the-air radio broadcast services, the Commission has sought to reconcile a statutory mandate to auction spectrum for commercial radio broadcast use²² and a statutory exemption for NCE radio

²⁰ In the case of public radio, Average Quarter Hour (“AQH”) listening by persons using radio (“PUR”) has increased 7% from 1996 to 2001; the commercial radio AQH/PUR has declined 3% during the same time period. Arbitron Nationwide.

²¹ See 47 C.F.R. § 73.525.

²² See 47 U.S.C. 309(j)(1).

broadcast services on whatever spectrum they are offered.²³ The Commission's first attempted solution was to auction all broadcast spectrum not specifically reserved for NCE use.²⁴ In response to the judicial invalidation of that decision,²⁵ the Commission has now proposed, among other things, to bar NCE applicants from applying for any non-reserved spectrum or to summarily dismiss NCE applications for non-reserved spectrum whenever a commercial entity proposes a mutually exclusive service.²⁶ The common thread running through these approaches to resolving mutually exclusive applications among NCE and commercial broadcast applicants is, we believe, a spectrum policy that unduly emphasizes the auctioning of spectrum when mutually exclusive commercial and NCE services are at issue.

We therefore urge the Spectrum Policy Task Force to reexamine the Commission's spectrum policy with a broader eye toward better accommodating NCE and other public service

²³ See 47 U.S.C. § 309(j)(2)(C).

²⁴ In the Matter of Reexamination of the Comparative Standards for Noncommercial Educational Applicants, Report and Order, 15 FCC Rcd 7386, ¶ 111 (2000) [hereinafter "Comparative Standards Report and Order"]. See also In the Matter of Implementation of Section 309(j) of the Communications Act -- Competitive Bidding for Commercial Broadcast and Instructional Fixed Service Licenses; Reexamination of the Policy Statement on Comparative Broadcast Hearings; Proposals to Reform the Commission's Comparative Hearing Process to Expedite the Resolution of Cases, Notice of Proposed Rulemaking, MM Docket No. 97-234; GC Docket No. 92-52; GEN Docket No. 90-264, 12 FCC Rcd 22363, at ¶ 50 (1997) ("propos[ing] to treat non-profit applicants for commercial frequencies, including those who could qualify under 47 C.F.R. § 73.503 as a non-profit educational organization, no differently under the proposed filing and competitive bidding procedures than any other mutually exclusive applicant for commercial frequencies").

²⁵ NPR v. FCC, 254 F.3d 226 (D.C. Cir. 2001).

²⁶ See In the Matter of Reexamination of the Comparative Standards for Noncommercial Educational Applicants, Association of America's Public Television Stations' Motion for Stay of Low Power Television Auction (No. 81), Second Further Notice of Proposed Rulemaking, MM Docket No. 31, 17 FCC Rcd 3833 (rel. Feb. 25, 2002). The Commission also solicited suggestions for reserving additional spectrum for NCE use. See id. ¶¶ 15-18.

oriented spectrum applications. Whatever the Commission's desire to allocate and assign spectrum without regard for its actual uses and users,²⁷ the Commission has a responsibility to allocate and assign spectrum in the public interest.²⁸ Notwithstanding granting the Commission authority to auction spectrum, moreover, Congress has also sought to promote the availability of noncommercial, public interest services, including through express auction exemptions, and it is likely to promote specific spectrum uses in the future.

As part of reexamining the existing market oriented spectrum policy, the Spectrum Policy Task Force should consider the amount of spectrum currently allocated to particular noncommercial services and the extent of demand for those services. In the case of NCE radio services, the Task Force will find that the need for spectrum to provide radio broadcast services, and NCE services in particular, has long exceeded the available supply of spectrum.²⁹ Accordingly, one solution to both addressing the need for spectrum for radio broadcast services and resolving competing applications for non-reserved spectrum among commercial and NCE applications would be to allocate additional spectrum, including the spectrum at 82-88 MHz to radio, if not exclusively to NCE radio use.

A complementary or alternative approach would be to employ, in whole or in part, some mechanism other than an auction to screen competing proposed NCE and commercial uses of non-reserved spectrum. Such a mechanism need not raise the specter of administratively cumbersome and time-consuming comparative hearings. Indeed, the Commission has already

²⁷ See In the Matter of Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, Notice of Proposed Rulemaking, WT Docket No. 00-230, 15 FCC Rcd 24203 (2000).

²⁸ 47 U.S.C. § 307.

²⁹ See Section II, infra.

developed a simplified, paper-based point system to resolve specific competing NCE applications for reserved NCE spectrum.³⁰ We are confident of the Commission's ability to resolve the simpler task of determining whether an NCE or commercial broadcast use of spectrum in a given geographic area best serves the public interest.

In any event, the Spectrum Policy Task Force need not resolve specific matters currently before the Commission to significantly improve upon the Commission's spectrum policy. The Task Force will have made substantial progress simply by acknowledging the limitations of any market-oriented spectrum policy, recognizing the important role of other categories of public interest services, such as NCE broadcast services, and considering possible modifications to the Commission's existing spectrum policy to better accommodate noncommercial services generally.

II. The Spectrum Policy Task Force Should Identify and Pursue Modifications to the Commission's Technical Rules to Better Protect Spectrum Users

In raising the basic issue of whether the Commission should do more to protect spectrum users from interference, the Spectrum Policy Public Notice comments that "the radio spectrum is becoming increasingly congested."³¹ At least in the case of the spectrum used for over-the-air radio broadcasting, however, severe congestion is far from a recent phenomenon. Indeed, as long ago as the early 1980s, the Commission concluded that "under the [then] present allotment rules, additional service cannot be offered to many parts of the nation where demand has not

³⁰ See Comparative Standards Report and Order at ¶ 18 ("A point system would reduce the costs and time associated with comparative proceedings both for applicants and the Commission. . . . The Commission could render decisions relatively quickly by replacing lengthy narratives with simpler point tallies."), review pending sub nom. American Family Ass'n v. FCC, No. 00-1310 (D.C. Cir. 2000).

³¹ Spectrum Policy Public Notice at 3.

been satisfied.”³²

Confronted by a demand for spectrum that continues to outpace supply, the Commission's response has been to increase the number of radio broadcast stations through the establishment of additional classes of radio broadcast facilities³³ and by attempting to relax the interference protections.³⁴ The Commission has pursued this approach without attempting to measure, let alone maintain, a baseline of acceptable interference-free reception. The matter is now even more critical, given the transition to digital broadcasting and concerns regarding same-service and cross-service digital-to-analog interference.³⁵ In response to the questions posed by the Spectrum Policy Task Force regarding interference protection, therefore, NPR believes the Commission very much needs to develop a clearer "harmful interference" standard and make a

³² Modification of FM Broadcast Station Rules to Increase the Availability of Commercial FM Broadcast Assignments, Report and Order, BC Docket No. 80-90, 94 F.C.C.2d 152, 153 (1983) [hereinafter "BC Docket No. 80-90 Report and Order"]. See also Conflict Between Applications and Petitions for Rulemaking to Amend the FM Table of Allotments, 7 FCC Rcd. 4917, 4919 (1992) (noting “the significant increase in the number of FM stations and the accompanying congestion in the FM band that has occurred since the formation of the FM Table of Allotments in 1964”).

³³ See BC Docket No. 80-90 Report and Order at ¶ 10.

³⁴ See In the Matter of Creation of a Low Power Radio Service, Notice of Proposed Rulemaking, MM Docket No. 99-25; RM-9208; RM-9242, 14 FCC Rcd 2471, at ¶¶ 43-49, rel. Feb. 3, 1999 (considering the elimination of the second and third adjacency protections for FM broadcast stations). But see Radio Broadcasting Preservation Act of 2000 ("RBPA"), Pub. L. No. 106-553, 114 Stat. 2762 (2000) (requiring the Commission to reinstate the second and third adjacency protections).

³⁵ See Ken Kerschbaumer, DTV Interference Issues Loom, *Broadcasting & Cable*, June 24, 2002 (“Industry experts warn that, when broadcasters get on-air with full-power DTV signals, interference issues like that being experienced by [analog station] WBOC-TV Salisbury, Md., may be the norm rather than the exception.”). See also Final Report, DTV Channel 6 Interference to FM Band Reception, Test Findings (July 24, 1998) (finding a likelihood of significant interference to reserved FM band stations in DTV channel 6 markets), MM Docket No. 87-268 (filed Oct. 20, 1998).

greater commitment to protecting reception from interference, including by generating receiver performance metrics and by proactively pursuing better receiver interference immunity performance.³⁶

A. The Commission Should Develop Better Interference Prediction Methodologies

The Commission's rules currently seek to limit interference between and among radio broadcast stations through assumptions made about the effective radiated power of a given station transmitter and the distance between that station and adjacent channel stations. In the case of the non-reserved FM channels, a table of allotments based on distance and station class determines where stations are predicted to operate without causing interference.³⁷ In the AM band and in the reserved portion of the FM band, the Commission employs less-protective contour prediction approaches such that new station applicants must provide an engineering showing that the interfering contour of the proposed facility is unlikely to overlap the service contour of the existing stations.³⁸ While these approaches to siting new broadcast stations are generally successful in minimizing interference, they are far from perfect.

As with any prediction, the challenge is to account for all potentially relevant variables. The Commission's technical rules, in particular, do a poor job of accounting for terrain.

Because of the limited length (3 to 16 kilometers) of the radials used to determine antenna height above average terrain, the Commission's standard propagation methodology does not accurately account for all terrain effects. For example, our standard contour methodology, which is used to calculate both interfering and protected contours, would not take into account a mountain at 25 kilometers from a transmitter site,

³⁶ See Spectrum Policy Public Notice, Question 7.

³⁷ See 47 C.F.R. § 73.207.

³⁸ See id. §§ 73.37, .509.

and thus, would incorrectly predict service (or interference) to areas well beyond this mountain.³⁹

While the Commission has proposed the adoption of a supplemental point-to-point ("PTP") prediction model to account for terrain beyond 16 kilometers from the transmitting antenna,⁴⁰ the proposed methodology requires further development.⁴¹ In addition, as NPR and others have suggested,⁴² the Longley-Rice terrain prediction model used for digital television ("DTV") might be a better approach, offering a single interference methodology to assess potential interference within the FM service and between adjacent FM and DTV services.⁴³

We therefore urge the Spectrum Policy Task Force to initiate an evaluation of the Commission's current methodologies for avoiding harmful interference when authorizing new broadcast facilities. Based on that evaluation, the Task Force should prepare specific recommendations for improving the accuracy of those methodologies. Finally, the Task Force should publish its recommendations and invite public comment to ensure the efficacy of the recommendations and to facilitate their refinement, adoption, and implementation.

B. There is a Critical Need for an Examination of Modern Receiver Performance and Receiver Interference Standards

³⁹ In the Matter of The Biennial Regulatory Review -- Streamlining of Radio Technical Rules in Parts 73 and 74 of the Commission's Rules, Notice of Proposed Rulemaking, MM Docket No. 98-93, 13 FCC Rcd. 14849, at ¶ 29 (1998) [hereinafter "Technical Streamlining NPRM"].

⁴⁰ Id. at ¶¶ 29-35.

⁴¹ See Comments of V-Soft Communications, Technical Streamlining NPRM, at 4-5 (filed Oct. 15, 1998).

⁴² Comments of National Public Radio, Technical Streamlining NPRM, at 7-8 (filed Oct. 15, 1998); Comments of V-Soft Communications, Technical Streamlining NPRM, at 5 (filed Oct. 15, 1998)

⁴³ See Comments of National Public Radio, Technical Streamlining NPRM, at 7-8.

As a related matter, predictions of interference-free service depend on the performance capabilities of radio reception equipment. Unfortunately, the existing technical rules are based on outdated studies of receiver sensitivity and selectivity. While there has been much conjecture over whether receiver manufacturers have improved receiver performance or merely reduced their manufacturing costs,⁴⁴ it is time for the Commission to establish a base line for modern receiver performance.⁴⁵ Particularly now, in the midst of the DTV transition and on the eve of the digital radio transition, it is more important than ever for the Commission to manage the radio frequency spectrum with a current and complete understanding of the minimum capabilities of radio receiving equipment. Moreover, to the extent mass market receiver equipment falls to meet minimum interference immunity requirements, the development of appropriate performance standards would be warranted.⁴⁶

The Commission has sought to encourage improvements in consumer electronics performance in other contexts. For instance, the Commission has mandated a range of standards to assure greater compatibility between cable television service and consumer electronics equipment.

It is useful to begin by reviewing the compatibility standards that we adopted in the

⁴⁴ See In the Matter of Creation of Low Power Service, Report and Order, MM Docket No. 99-25, 15 FCC Rcd. 2205, at ¶¶ 75-92 (2000).

⁴⁵ Indeed, the Commission long ago eliminated its AM and FM transmission proof of performance standards based on its view that competitive marketplace pressures would induce radio broadcasters to continue to meet or exceed the existing standards and, therefore, assure quality reception. See A Re-Examination of Technical Regulations, GEN Docket No. 83-114, 99 F.C.C.2d 903 (1984). At no time since has the Commission conducted a comprehensive examination of receiver performance to assure that the quality of radio signals at the point of reception sufficiently approximates the quality of the signal at the transmission point.

⁴⁶ See Spectrum Policy Public Notice, Question 14.

analog domain. First, we required cable systems and consumer electronics equipment to utilize a standard channel plan for NTSC transmissions. Second, we prohibited cable systems from scrambling channels on the basic service tier. Third, we specified standards for labeling a television receiver as "cable-ready." Fourth, we required cable operators to offer subscribers "supplemental equipment" to enable them to use special features and functions of their television equipment with cable service, e.g., picture-in-picture, recording from one channel while watching another. In particular, we require cable operators to offer subscribers equipment providing direct reception of all unscrambled signals and simultaneous reception of any two scrambled signals transmitted. In addition to adopting rules addressing these matters, the Commission expressed support for an industry-developed standard "decoder interface" to separate security functions from other functions, for standards for cable digital transmissions, and for open entry into the business of supplying cable home equipment. Our equipment compatibility rules also place certain requirements on television receiving equipment that is marketed as cable ready or cable compatible. In essence, then, our compatibility rules and scrambling limitations were designed to ensure that consumers could access a range of cable services using a "cable-ready" television receiver without obtaining additional equipment from the cable operator.⁴⁷

The approach offers valuable benefits by encouraging the affected industry sectors to address compatibility issues in advance, thereby reducing the number and severity of problems.⁴⁸

NPR urges the Spectrum Policy Task Force to champion a comparable initiative in this proceeding. While the development of appropriate standards is a task properly borne by the private sector, the Commission has an important, catalytic role to play. First, it can initiate a proceeding to establish a base-line understanding of current receiver performance capabilities. This should include the significance and prevalence of Receiver-Induced Third Order Intermodulation interference ("RITOI") and television channel 6 defects. Second, depending on the outcome of such an inquiry, the Commission can encourage broadcasters and consumer electronics manufacturers to develop an appropriate standard, including through the threat of

⁴⁷ See In the Matter of Compatibility Between Cable Systems and Consumer Electronics Equipment, Notice of Proposed Rulemaking, PP Docket No. 00-67, 15 FCC Rcd 8776, at ¶ 14 (2000).

⁴⁸ See also Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, Fifth Further Notice of Proposed Rule Making, MM Docket No. 87-268, at ¶

administrative action⁴⁹ and with the assistance of the Commission's expert engineering staff.

Third, and as a related matter, it might require manufacturers to inform the public, through product labeling, of equipment performance against objective performance benchmarks.

The Commission has long recognized the importance of consumer choice, including in selecting consumer electronics equipment.

If immunity standards are imposed by government regulation, the increased cost of achieving them will fall on all purchasers of home electronic entertainment equipment. It is quite conceivable that some consumers, given a choice, would prefer the less protected equipment at a lower cost. Some consumers may not experience interference at their location or may prefer to cope with the interference in other ways. An alternative to government regulation would be the provision of information to consumers on the interference immunity of various grades of equipment so that consumers could select the equipment which best met their individual needs. This might be done voluntarily by manufacturers and retail dealers or by a government requirement for equipment labeling which indicated the interference immunity of the product.⁵⁰

As a result of relatively unobtrusive regulatory intervention, consumers could be placed in a better position to choose receiver equipment and to receive broadcast services based on their individualized needs.

It may be that more aggressive measures ultimately are warranted. In adopting the current rules to address blanketing interference, the Commission rejected the suggestion that it adopt technical interference immunity rules.⁵¹ It did so based on the conclusion that "[a] more desirable [alternative to government imposed standards] would be voluntary standards developed

66 (rel. May 20, 1996).

⁴⁹ See Implementation of Section 17 of the Cable Television Consumer Protection and Competition Act of 1992, First Report and Order, 75 R.R.2d 152, at ¶ 41 (1994).

⁵⁰ In the Matter of Radio Frequency (RF) Interference to Electronic Equipment, 70 F.C.C.2d 1685, 1688 (1978).

⁵¹ In the Matter of FM Broadcast Stations Blanketing Interference, 57 R.R.2d 126, 130

by industry leaders.”⁵² While NPR agrees with that view as a general matter, it has been almost two decades since the Commission chose to defer to purely voluntary standards setting efforts, with no appreciable progress in the voluntary development of interference immunity standards.

Likewise, the Commission has long required reserved FM band NCE stations to protect the signals of adjacent channel 6 television licensees.⁵³ That has been the case, even though the record in the Channel 6 interference proceeding established that the interference problems are attributable to a design flaw in television receivers.⁵⁴ As in the case of blanketing interference, the Commission declined to address the actual cause of the interference problem, based on the assumption that “the [consumer electronics] industry appears to have every intention of developing improved immunity standards on its own.”⁵⁵

In the absence of television receiver standards, the channel 6 interference rules have placed the entire burden of avoiding interference on reserved FM band NCE stations.⁵⁶ Indeed, despite the strong Federal interest in extending public radio service to all,⁵⁷ NCE FM radio in the

(1984).

⁵² Id.

⁵³ See Changes in the Rules Relating to Noncommercial Educational FM Broadcast Stations, Memorandum Opinion and Order, 58 R.R.2d 629, at 630-31 (1985) [hereinafter “Channel 6 Memorandum Opinion and Order”]; 47 C.F.R. § 73.525.

⁵⁴ Channel 6 Memorandum Opinion and Order at 631. See also Public Notice, FCC 81-340, rel. July 22, 1981 (“The problem is widely recognized as a problem in the design of the television receiving system. Television sets have been designed in such a way that under certain conditions they are unable to reject the undesired FM signal.”).

⁵⁵ Channel 6 Memorandum Opinion and Order at 632.

⁵⁶ 47 C.F.R. § 73.525.

⁵⁷ 47 U.S.C. § 396(a).

United States has been severely restrained by the presence of TV channel 6 broadcasters.

We therefore urge the Spectrum Policy Task Force to spearhead an examination of the current performance characteristics of radio reception equipment and, in particular, the interference immunity of mass market receivers. Based on such an examination, the Task Force should seek to develop baseline minimum performance levels for the principal categories of radio receivers, including automobile, table, and portable radios as well as new Satellite Digital Audio Radio Service ("SDARS") and emerging In-band, On-channel ("IBOC") receiver equipment. With a comprehensive understanding of the performance characteristics of radio receivers, the Task Force could then make specific recommendations about the need to improve receiver performance, including through the development of appropriate equipment standards.

C. Greater Resources Should be Devoted to Enforcing the Commission's Technical Rules and Assuring Interference Free Reception

The third component to better protecting spectrum users and uses is enhanced enforcement of the Commission's technical rules. Over the past two decades, as the Commission has substantially deregulated broadcast licensees, the Commission has also sought to reduce the resources it allocates to the broadcast services.⁵⁸ While understandable and generally appropriate as a fiscal matter, we believe additional resources should be allocated to the enforcement of the Commission's rules governing spectrum users and uses.

⁵⁸ For instance, the Commission has sought to rely on licensee certification rather than requiring applicants to demonstrate compliance with applicable requirements. See In the Matter of 1998 Biennial Regulatory Review -- Streamlining of Mass Media Applications, Rules, and Processes; Policies and Rules Regarding Minority and Female Ownership of Mass Media Facilities, Report and Order, MM Docket No. 98-43, MM Docket 94-149, 13 FCC Rcd 23056, at ¶¶ 22-24 (1998). Additionally, the Commission has sought to privatize certain of its enforcement activities, including addressing interference complaints. See In the Matter of Improving Commission Processes, Notice of Inquiry, PP Docket No. 96-17, 11 FCC Rcd. 14006, at ¶ 37 (1996).

In the radio broadcast service, interference issues typically arise at two stages: when an applicant proposes to construct a new station and after a station is constructed and operating. Particularly in the context of new applications for translator stations, the experience of NPR's Member stations has been that the Commission overlooks interference issues in the interest of introducing additional broadcast service. Thus, despite the secondary status of translator stations⁵⁹ and the potential disruption to existing services, the Commission has increasingly placed a heavy burden on existing licensees to demonstrate the likelihood of interference to station listeners.⁶⁰ The Commission has justified this approach in part on the grounds that any actual interference can be remedied after the new station is constructed and operating.⁶¹

Remedying interference at that stage, however, is dependent upon listener complaints. Whether consciously considered or not, listeners tune out channels that offer lower fidelity reception, are plagued by interference at certain locations, suffer from splatter or stoplight "grunge", or for other reasons cannot compete with the quality of sound available on their cassette and CD players. As a result, the lynchpin of the Commission's enforcement efforts -- listener complaints -- is predicated on the questionable assumption that listeners will complain to

⁵⁹ Under the Commission's rules, FM translator stations may not cause either predicted or actual interference to the public's direct reception of any authorized FM broadcast station. 47 C.F.R. §§ 74.1203(a)-.1204(a).

⁶⁰ See, e.g., Calvary Chapel of Twin Falls, 13 FCC Rcd 25286 (1998) ("Although Citicasters submitted exhibits suggesting that there is likelihood of interference to KIOZ, Citicasters has not demonstrated that KIOZ has any listeners within the translator's proposed 1 mV/m contour. Citicasters states that Arbitron's Spring 1997 survey indicates that it has ' . . . a resident of the 92325 zip code . . . ' that listens to KIOZ. However, Arbitron data does not demonstrate that any such listener is within the translator's 1 mV/m contour.").

⁶¹ See, e.g., id. ("Should operation of Calvary Chapel's authorized facility cause actual interference to reception of KIOZ, Calvary Chapel would be required to remedy such interference or cease operation in accordance with 47 C.F.R. § 74.1203.")

a radio station or the Commission rather than choose the far more expedient alternative of changing the channel or listening to a CD or cassette tape.

We understand the Commission's desire to encourage the development of private mechanisms to ensure the proper, non-interfering use of spectrum.⁶² Indeed, an evaluation of the Commission existing enforcement efforts may identify specific ways in which the Commission's enforcement efforts may be strengthened through private means. At the end of the day, however, the objective remains the same: spectrum users and the public interest require effective management of the radio-frequency spectrum. Accordingly, we urge the Spectrum Policy Task Force to examine the Commission's existing enforcement of its existing technical rules and consider ways to improve those enforcement efforts and better protect existing spectrum users and uses.

⁶² See Spectrum Policy Public Notice, Question 15.

Conclusion

NPR supports the efforts of the Spectrum Policy Task Force to examine and consider improvements to the Commission's existing spectrum policies, and we urge the Task Force to pursue the particular matters discussed above.

Respectfully submitted,

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